

hydroxymethacrylate. The rejection is based on the position that it would be obvious to recycle the raw materials isolated from the reaction product.

The process of Murayama et al. is similar to the process disclosed in the prior patents cited in the previous Office Action which are now withdrawn from this rejection. As noted in the Action, Murayama et al. does not disclose or suggest distilling the reaction product to recover unreacted acrylic acid and/or methacrylic acid, and thereafter recycling the monomer components to the reaction vessel. Murayama et al. is an example of the prior distillation steps that are used to recover and purify the hydroxyalkylacrylates and hydroxyalkylmethacrylates. Murayama et al. discloses adding a polyalkylene glycol to the reaction product to prevent the formation of diesters which can form an insoluble polymer that adheres to the heating portion of the distillation column. Thus, Murayama et al. is an example of the prior processes that use a polymerization inhibitor during the distillation to obtain a purified hydroxyalkylacrylate and hydroxyalkylmethacrylate.

The Action contends that the only difference between Murayama et al. and the claimed invention is the failure to disclose recycling the methacrylic acid. The Action refers to Table 1 for the position that the distilled product contains unreacted methacrylic acid. However, it is clear that the distillation process of Murayama et al. is for the purpose of producing purified hydroxyalkylacrylates and hydroxyalkylmethacrylates and not for recovering unreacted components. The passages referred to in the Action do not support the position that it would have been obvious to recycle the distilled product. For example, Table 1 referred to in the Action discloses that the resulting product contains 0.4 weight% methacrylic acid while the resulting reaction product of the hydroxyalkylacrylates and hydroxyalkylmethacrylates are present in the amount of 98 weight%. It would not have been obvious to one of ordinary skill in the art to recycle a distilled reaction product of Murayama

et al. containing such a negligible amount of methacrylic acid. Furthermore, it would not have been obvious to one of ordinary skill in the art to recover the negligible amount of methacrylic acid from the distilled product for the purpose of recycling to the reaction mixture.

The fraction that is separated from the resulting hydroxyalkylacrylates and hydroxyalkylmethacrylate of Murayama et al. contain the various impurities, byproducts, unreacted components and the polyalkyleneglycol. As noted in column 3, lines 26-52 of Murayama et al., the polyalkyleneglycols added to the reaction product do not distill out with the hydroxyalkylacrylates or hydroxyalkylmethacrylates. Therefore, the remaining mixture contains the polyalkylene glycols so that it would not be obvious to one of ordinary skill in the art to recycle the fraction containing the methacrylic acid.

In view of the deficiencies of Murayama et al., claim 1 would not have been obvious to one of ordinary skill in the art. Claims 2, 3, 5, 6 and 8-13 would also not have been obvious for reciting additional features of the invention that are not disclosed in Murayama et al. in combination with the process of claim 1. For example, Murayama et al. clearly fails to disclose recovering unreacted alkylene oxide with the unreacted methacrylic acid by the distillation step, and thereafter recycling as in claim 2. Murayama et al. also fails to disclose separating unreacted alkylene oxide from the reaction liquid prior to distilling to recover the unreacted methacrylic acid as in claim 3. Murayama et al. also does not disclose the distillation column of claim 5, the polymerization inhibitors of claim 6, purifying the resultant reaction liquid containing the crude hydroxyalkylmethacrylate after recovering the unreacted methacrylic acid by the distillation as in claim 8, purifying the reaction liquid by a second distillation step as in claim 9, continuously recycling the unreacted methacrylic acid

as in claim 10, transferring the distillate to the reaction apparatus as in claims 11, 12 and 13, in combination with the process steps of claim 1.

In view of the above, the claims are allowable over Murayama et al.

Rejection Over Murayama et al. in View of Matsumoto et al.

Claims 1-3, 5, 6 and 8-13 are also rejected as being obvious over Murayama et al. in view of U.S. Patent No. 6,534,625 to Matsumoto et al. Murayama et al. is cited as in the previous rejection. Matsumoto et al. is cited for disclosing a process for producing a hydroxyalkylmethacrylate by carrying out the reaction and recovering the recycling the unreacted residue of the alkylene oxide.

Initially, it is noted that the rejection over Matsumoto et al. is improper under 35 U.S.C. § 103(a). Subject matter developed by another person which qualifies as prior art only under subsections (e), (f) and (g) of Section 102 shall not preclude patentability under this section where the subject matter of the claimed invention at the time of the invention was made, owned by the same person, or subject to an obligation of assignment to the same person. 35 U.S.C. § 103(c)(1). Matsumoto et al. is assigned on its face to the same assignee as the present application. The assignment of the present application is recorded on Reel 012353, and Frame 0057. Since Matsumoto et al. is available as prior art only under 35 U.S.C. § 102(e), the Matsumoto et al. patent cannot support a rejection under 35 U.S.C. § 103. Accordingly, Applicants request the rejection over Matsumoto et al. be removed.


Furthermore, Matsumoto et al. does not disclose the claimed features of the invention and does not provide the deficiencies of Murayama et al. Matsumoto et al. only discloses removing the unreacted components by stripping or adsorption and thus is similar to the prior processes that are different from the claimed invention. There is no suggestion of distilling

the reaction mixture to recover unreacted methacrylic acid or alkylene oxides. Therefore, Matsumoto et al. provides no motivation or incentive to recycle the unreacted compounds obtained by distillation of the reaction mixture. Therefore, even if one were to modify Murayama et al. according to the disclosure of Matsumoto et al., the resulting combination would not be the claimed invention. Matsumoto et al. does not provide the necessary motivation or incentive to modify Murayama et al. in the manner suggested in the Action.

For the reasons discussed above in connection with the rejection over Murayama et al., the claims are not obvious over Murayama et al. either alone or in combination with Matsumoto et al.

In view of the above comments, reconsideration and allowance are requested.

Respectfully submitted,


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